

Barrel slice assembly

-Present status and ongoing preparations-

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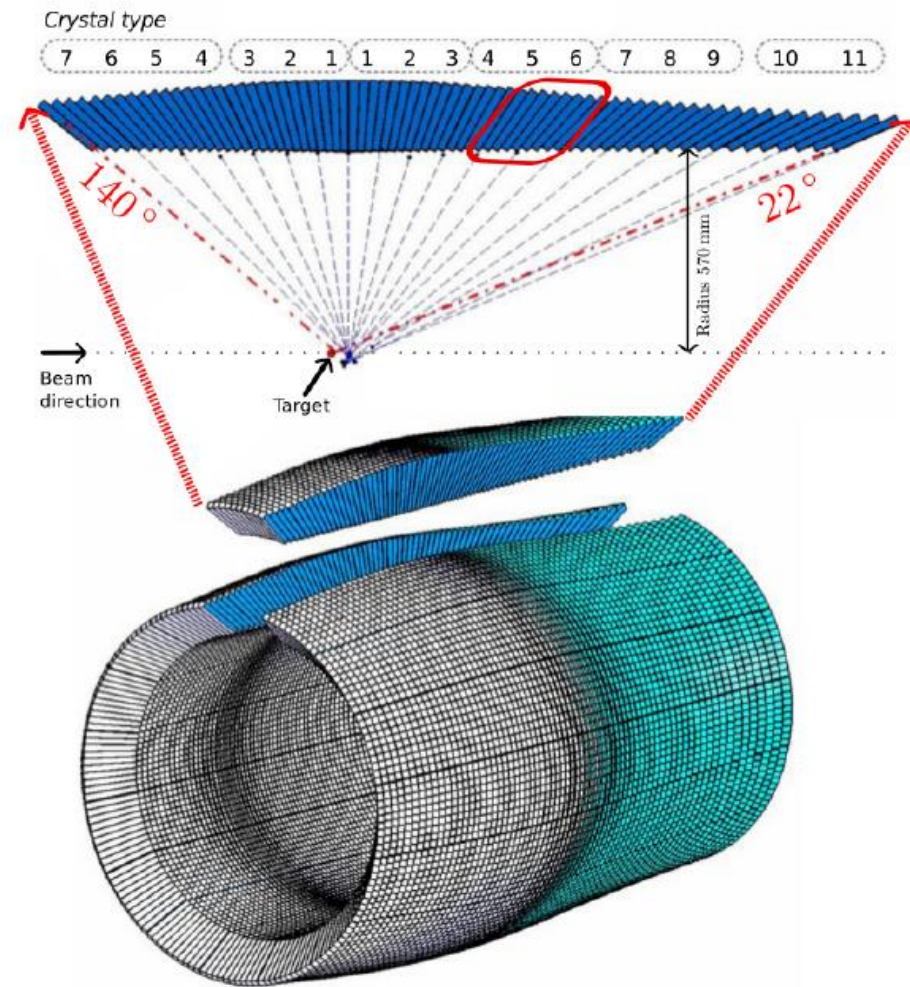
PANDA CM, March 2017



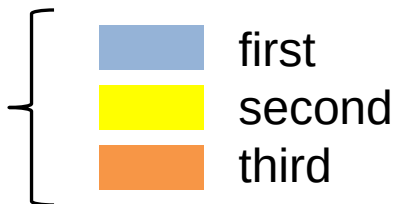
•Envisaged milestone:

Assembly of 1st full Barrel EMC Slice

- 710 crystals in 11 different geometries.
- 1420 matched APDs after 1st screening, irradiation, 2nd screening.
- 710 APFEL ASICs
- 360 left and 360 right handed APFEL-ASIC flex PCBs
- 4500 m of signal cables.
- Cooling
- Capsules, Foils, ...

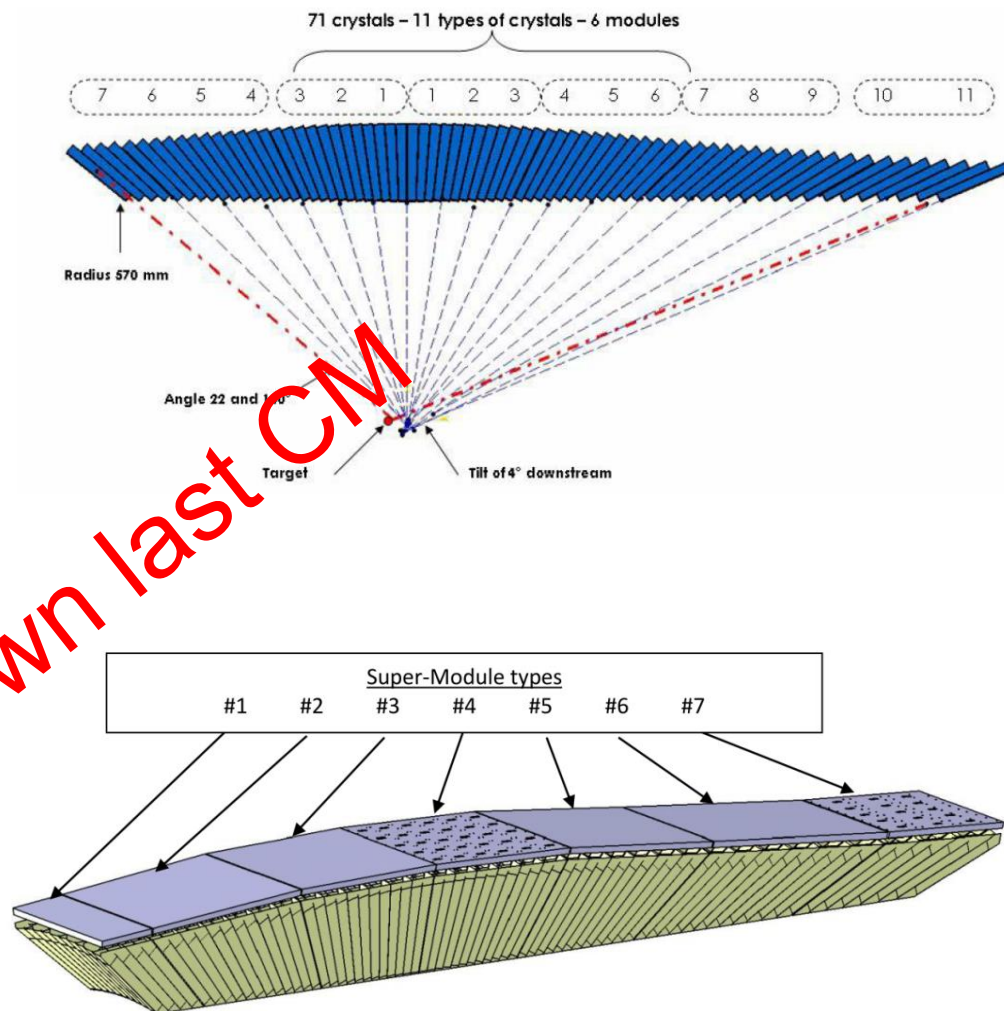


3 sessions for
module assembly



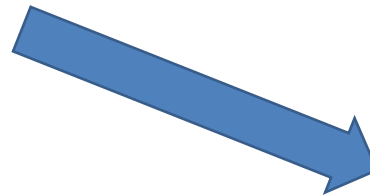
Super Mod.	Type of Mod	Assembly Date
1	7 (-)	CW 41
2	6 (-)	CW 3
	5 (-)	CW 3
	4 (-)	CW 3
3	3 (-)	CW 48
	2 (-)	CW 48
	1 (-)	CW 48
4	1 (+)	CW 48
	2 (+)	CW 48
	3 (+)	CW 48
5	4 (+)	CW 41
	5 (+)	CW 41
	6 (+)	CW 41
6	7(+)	CW 3
	8(+)	CW 3
	9 (+)	CW 3
7	10 (+)	CW 41
	11 (+)	CW 41

1 session for supermodule & slice
assembly



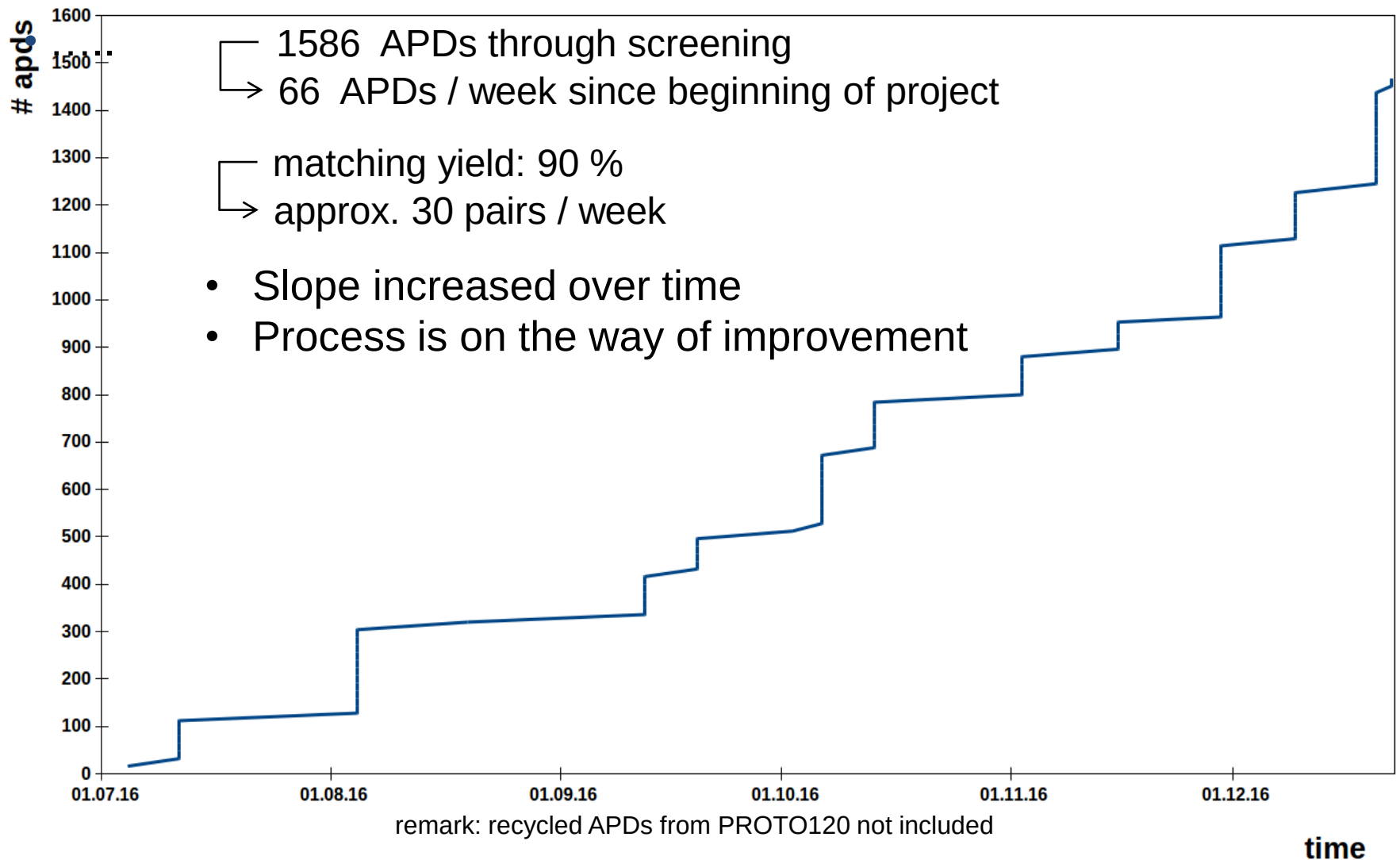
CW	Remarks
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	1 st session
42	
43	
44	
45	2 nd session
46	
47	
48	
49	3 rd session
50	
51	
52	

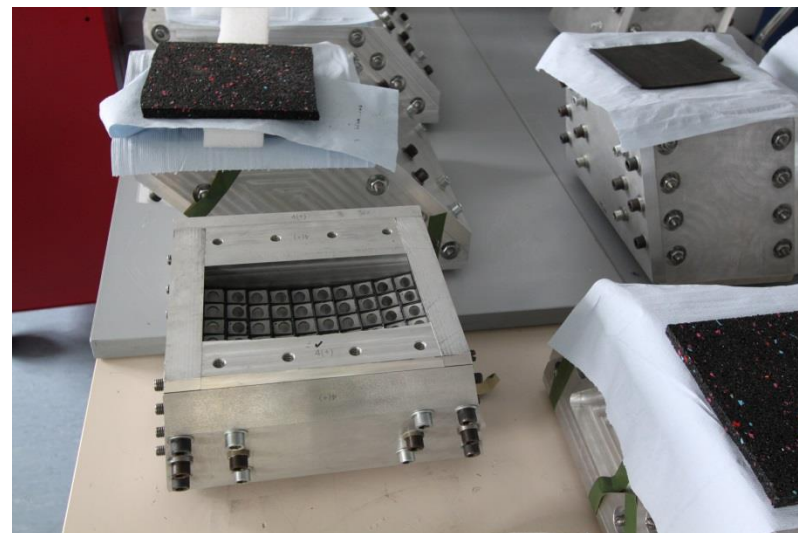
Shifted due to
APD throughput



40	
41	1 st session
42	
43	
44	
45	
46	
47	
48	2 nd session
49	
50	
51	
52	
1	
2	
3	
4	
5	
6	
7	3 rd session
8	
9	

- schedule cm September 2016-





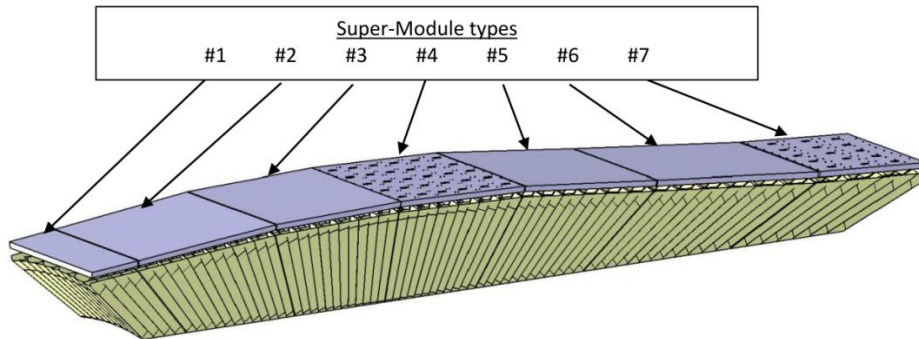


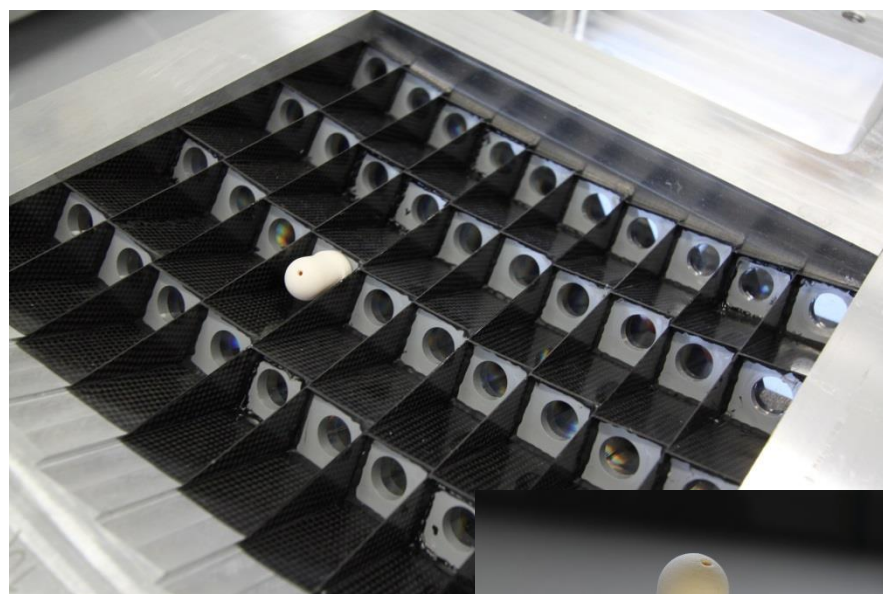
As soon as all Flex-PCBs are available:

- Session for Supermodule & Slice assembly can start
- Afterwards: evaluation of mechanical design can be carried out
- Delivery Flex-PCBs to Gießen approximately in July

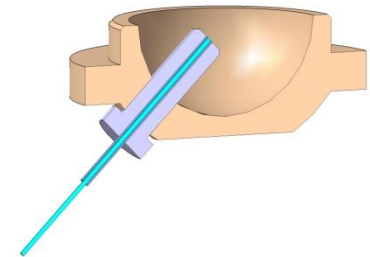
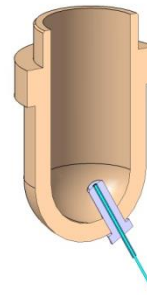
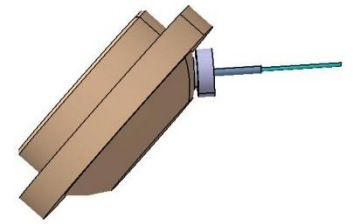
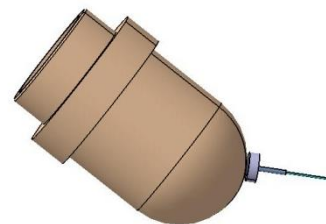
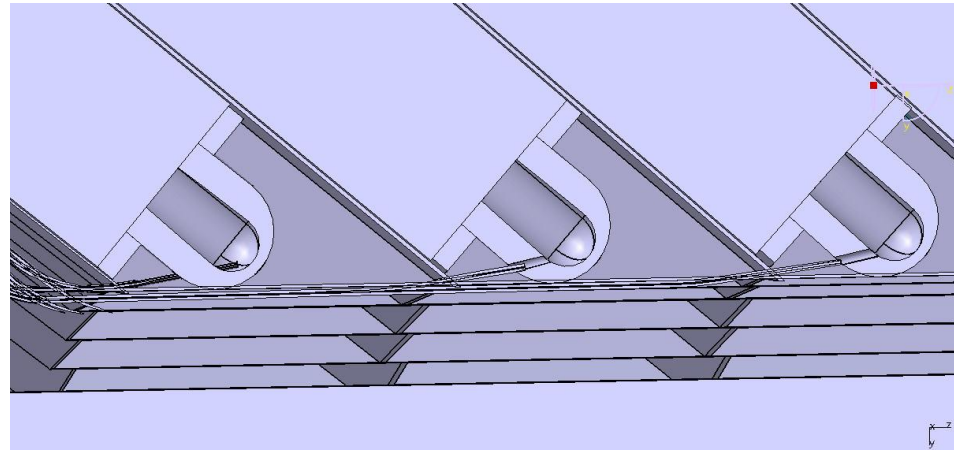
Major open Tasks:

- Fiber coupling
- Cooling
- Electronic Shielding

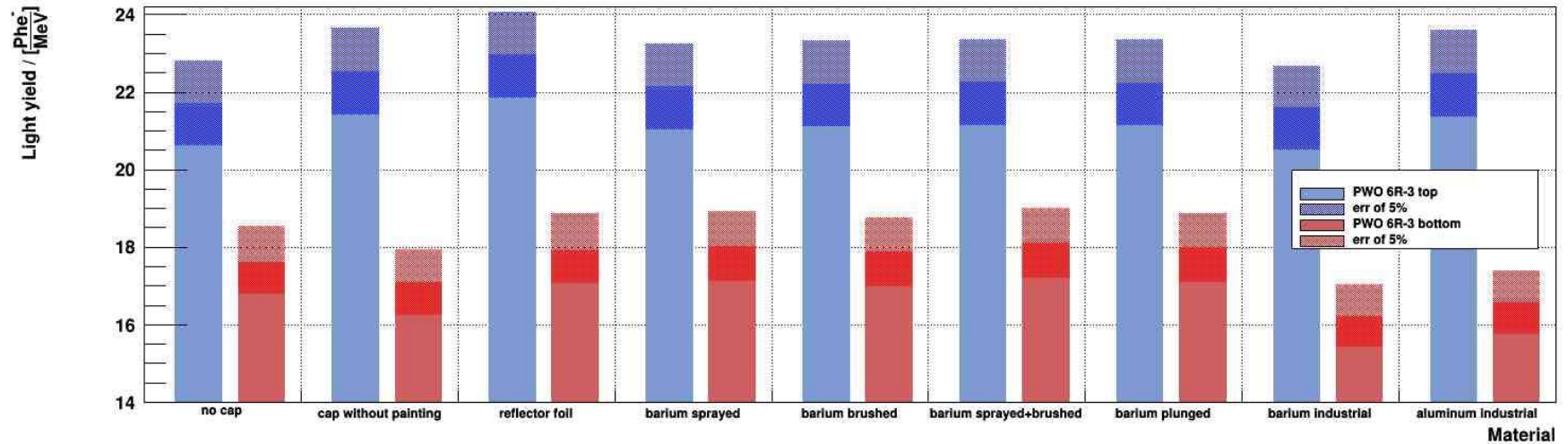




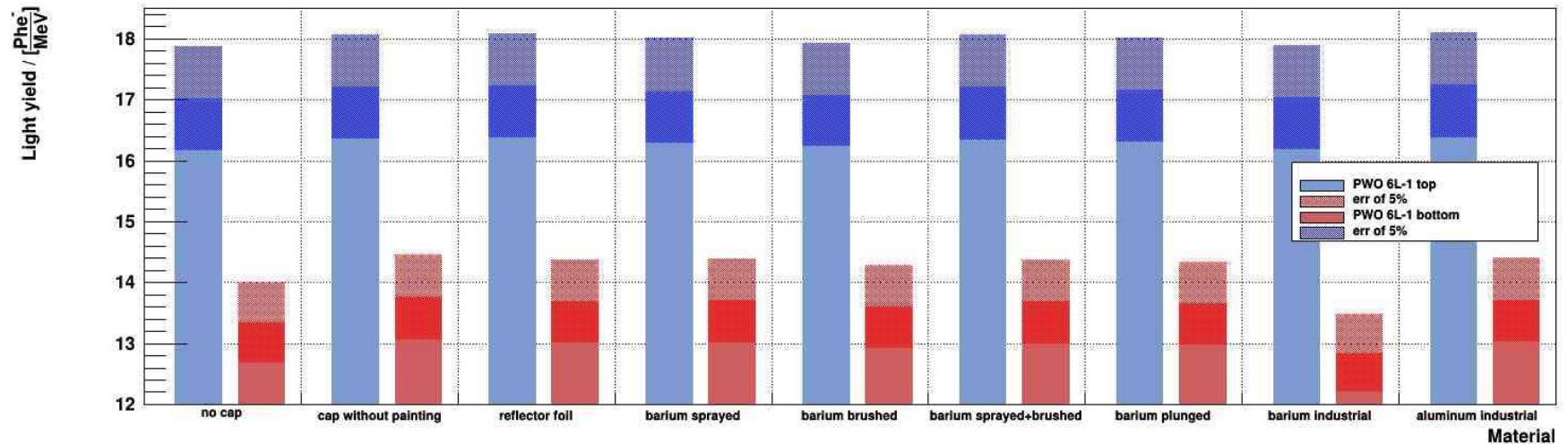
- Different length for different positions
- Prototypes currently tested
- First results on the next slide



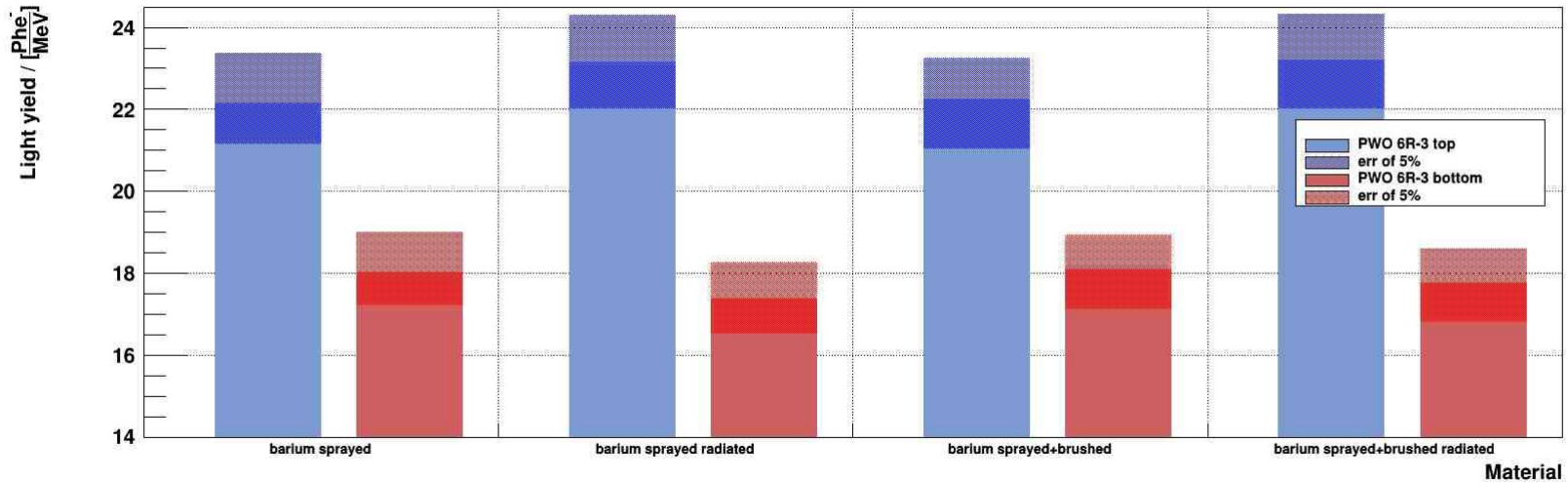
Light yield (PWO 6R-3)



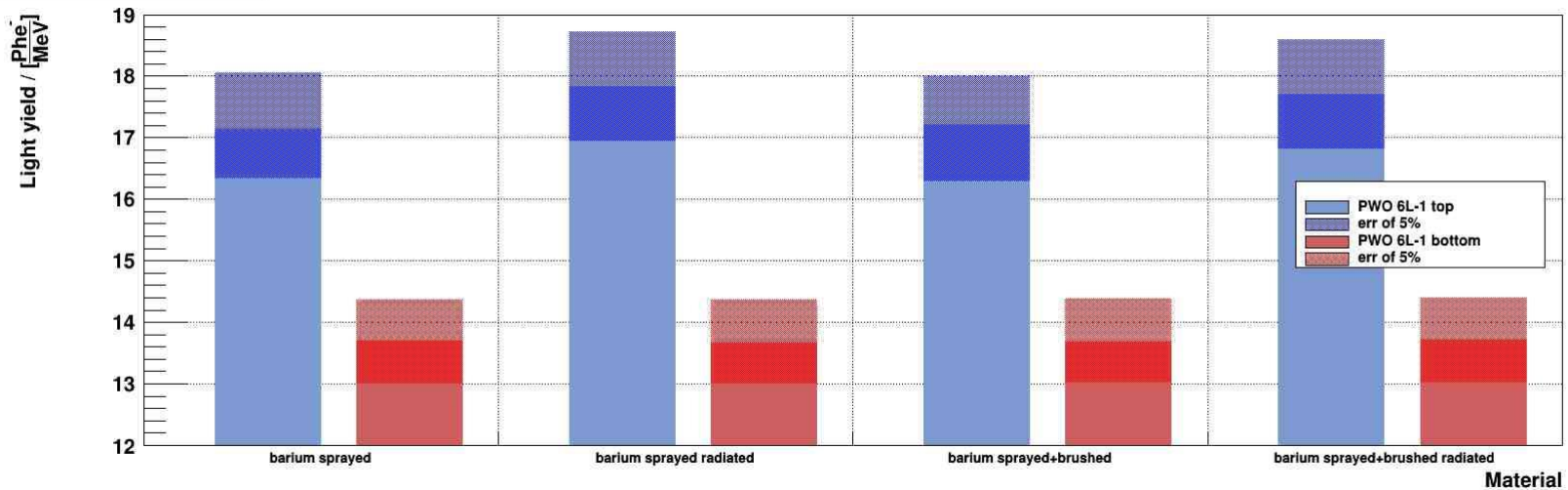
Light yield (PWO 6L-1)



Light yield (PWO 6R-3)



Light yield (PWO 6L-1)



- **Module assembly:**
 - finished.
- **Slice assembly:**
 - ASICS with Flex-PCBs expected in July
 - Workspace and Tools almost ready
 - Electronic shielding concept in collaboration with expert Engineers from THM will be developed soon.
 - Fiber coupling concept promising
 - LY loses / gains within Error bars
 - Efficiency for light pulses (from fibers) will be tested soon
 - Cooling concept has to be developed

	2016							2017					
	6	7	8	9	10	11	12	1	2	3	4	5	6
crystal tests													
APDs (2000 pcs)													
irradiation	400/week												
2 nd screening	150/week												
matching													
reflective foil production													
capsule production													
detector assembly		40/week											
ASIC PCBs (710 pcs)													
PCB production							11 weeks lead time						
mounting/bonding			8 weeks										
testing				90/week									
module assembly													
Backplane PCB (180 pcs)													
design													
testing	testing of prototypes + rad hardness of components												
production													
testing							20/week						
signal cables (890 pcs)													
ordering													
tayloring													
mounting on connector PCBs				38/week									
slice assembly													
module placement													
BPL mounting													
cable routing													
SC & DAQ													
cooling													
installation of Bo cooling													
test with slice													

	2016							2017					
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ASIC PCBs (710 pcs)													
PCB production	1 month + order + vacation time												
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